(pp. 61–62): two integers a and b are called "equivalent" (muta'ādil) if $S(a) = S(b)$, where $S(x)$ stands for the sum of the proper divisors of x. Yazdī gives the pair 39, 55 as an example. Here Naini could have added a reference to [Dickson 1934, 50], dealing with the same subject. Naini then proves some results of his own in a section on "equivalent numbers from a modern point of view" (pp. 63–72). The results are, however, not very significant, and the mathematical exposition seems inelegant; for example, the right columns on pages 68–71 are completely superfluous.

Naini provides facsimiles of some pages of Yazdī's *Sources of Arithmetic*, and he has translated several fragments of it. After the publication of the book under review, the Arabic text of Yazdī's sections on amicable numbers was published in [Rashed 1982]. However, an edition with translation and commentary of the entire text would be very useful, and it is hoped that Naini will undertake this project.

REFERENCES

Dickson, L. E. 1934. *History of the theory of numbers*, Vol. 1, *Divisibility and primality*. Reprint, New York: Stechert.

Hogendijk, J. P. 1985. Thābit ibn Qurra and the pair of amicable numbers 17296, 18416. *Historia Mathematica* **12**, 269–273.

Rashed, R. 1982. Matériaux pour l'histoire des nombres amiables et de l'analyse combinatoire. *Journal for the History of Arabic Science* **6**, 209–278. [mainly in Arabic]

La Raccolta Carlo Viganò. By Pier Luigi Pizzamiglio. Preface by Carlo Felice Manara. Brescia (Editrice La Scuola), 1979. 219 pp. 20 illustrations.

Reviewed by Judith R. Goodstein

California Institute of Technology, Pasadena, California 91125

The Italian engineer Carlo Viganò lived in northern Italy and dedicated his life and the ample means at his disposal to building up a private library of Renaissance texts and manuscripts, the latter mainly 17th and 18th century, all now owned by the Catholic University in Brescia. Formed largely of Italian authors, *The Carlo Viganò Collection* lists and describes the scientific books, manuscripts, and incunabula comprising Viganò's library, the grand total being 499 works.

The Viganò collection of 16th-century books (the largest section of the library) and those printed before 1501 is rich in ideas for the study of the history of science. Spanning the years 1482 to 1600, the books touch widely on the mathematical and physical sciences, reflecting in part Viganò's abiding interest in such subjects as the Jesuits' contributions to science, Brescian mathematicians, and scientific and technological problems relating to clocks and time keeping. The 61 manuscripts in the catalog include a number of unpublished and published works on hydraulics, ranging from the problem of locating underground water for a potable water supply for the town of Chioggia to research on the waterways

surrounding Venice. Scientists of international stature, Galilei Galileo and Paolo Frisi among others, are represented by letters and documents, but other names, less famous, turn up as well: Giovanni Regaglioli and Vitale Giordani, for example writing about astronomy and Euclid's geometry, respectively. Rounding out the catalog's manuscript material are lecture notes for physics courses at the University of Modena and the Gregorian College in Rome in the time of Roger Boscovich.

Bibliographical descriptions of the works listed are brief but useful. Typically, the title, date of publication, publisher, publishing history, biographical notes, and pertinent secondary sources are provided, along with a list of references cited; the indexes following the body of the catalog also allow the reader to look up a text by publisher or printer, place of publication, year of printing, or by author.

The absence of any information about the provenance and the physical condition of the 16th-century books limits the opportunities for a wider audience of scholars. Several questions spring to mind. How many of the volumes still have their original bindings? Are there any ownership markings on the Copernicus *De Revolutionibus Orbium Coelestium*, the 1566 Basel edition, the first edition to contain Rheticus' *Narratio prima*? Are there signs of past ownership on any other volumes? How many books in the Viganò collection are the only known copy or are an unusual copy? Finally, the renaissance of the handcrafted book in the 20th century suggests that the matter of how books were physically put together four centuries ago will remain a lively field of investigation. For this reason alone, the addition of a brief description of the binding style for each volume—for example, contemporary vellum, sheep, mottled calf, or Italian paper—would have enhanced the value of this reference work.